

## Colostrum and Edema

October 15, 2009; By Dr. Anthony Kleinsmith

Dear consumer,

Your question regarding edema has been forwarded to me. I am a business and technology consultant with extensive knowledge regarding the formation and composition of bovine colostrum and its health-related applications in humans and animals.

The term "ischemia" means a decrease in the blood supply to a bodily organ or body part due to the constriction or obstruction of the blood vessels that serve that organ. When applied to the heart, it means that the blood vessels that bring nutrients and oxygen to the heart muscles were blocked and sections of the muscle tissue were starved for oxygen and may have died. This usually occurs due to the build-up of atherosclerotic plaque, or fatty deposits, on the inside walls of the blood vessels that eventually become so large that they block the flow of blood. The condition is usually accompanied by a shortness of breath and some associated chest pain. The body is very dependent upon normal blood flow and effective pumping of the heart to distribute blood throughout the entire body. When the blood flow is impaired, fluid may accumulate in various tissues, but particularly in the lower extremities due to gravity. As a result, the lower leg, ankle and foot may swell.

Another heart condition found in older individuals that leads to reduced blood flow is so call "congestive heart failure" in which the ventricles pump with less efficiency than normal. The muscular walls of the ventricles tend to enlarge in an effort to propel more of the blood into the circulation. People with this condition fatigue rapidly when exercising.

In addition to conditions that affect blood flow, there are many reasons why one would experience swelling in the lower extremities. One of the reasons is electrolyte imbalance and/or excess protein in which certain essential elements are missing from the diet and/or are not properly metabolized by the body. Kidney disease is another cause. This problem leads to an accumulation of fluids in the tissues as the body tries to balance the high concentrations of these materials by sending water where their concentration is the highest.

One of the most common reasons for fluid accumulation in the lower extremities of otherwise healthy individuals is the lack of physical exercise for long periods of time. People who spend all day working at a desk and then sitting at home in the evening often find it difficult to remove their shoes at night. If you have ever traveled overseas on a long plane flight, your feet and ankles swell just from sitting still for a very long period of time. The same phenomenon often occurs in older individuals who have diminished physical activity. This occurs because the body is very dependent upon continuous physical activity to assure proper distribution of blood throughout the body and when you sit for long periods, the demand on the heart is significantly reduced and fluid accumulates in the tissues. Gravity does the rest and the feet and ankles swell as water accumulates there.

Whatever the cause of the swelling in your Dad's feet and ankles, he would definitely benefit from routine dietary supplementation with a high quality bovine colostrum, particularly considering his age. Insulin-like growth factor-1 (IGF-1) and its closely related counterpart insulin-like growth factor-2 (IGF-2) are potent hormones that are found in significant quantities in colostrum and in association with almost every cell in the body. IGF-1 is the most potent and best described of this pair. These molecules are present in all mammals and, in every case, have a very similar chemical structure regardless of the species. IGF-1 is absolutely necessary for normal cell growth and cell repair. The main triggered events under the direct control of IGF-1 include activation of the process by which the cell grows and reproduces itself and maintenance of the metabolic pathways by which the cell converts glucose into glycogen and uses amino acids to create proteins. The actual pathway by which the cell uses glucose and converts it to glycogen is first switched on by the binding of insulin to its specific cell surface receptors. Glycogen is stored in the liver and muscles and is the reserve source of readily available energy when the muscles are exercised.

IGF-1 also has a direct role in how the cell uses amino acids to build proteins. IGF-1 is like the captain of a ship. As we age, the ability of our body to create an adequate supply of IGF-1 is diminished. Thus, by eating a well-balanced diet and maintaining a constant supply of IGF-1 in our body, we can keep the ship moving at the right speed and in the right direction. And when we exercise this becomes even more critical since there is an increased demand for glycogen to provide energy to

our muscles and the preference is to build more muscle protein. Even more importantly, as we age the cells in our body do not reproduce themselves as well and, since IGF-1 is a primary factor, along with growth hormone (also present in colostrum), in the ability of cells to grow, reproduce and repair themselves, it is highly desirable to have an appropriate level of IGF-1 in the circulation through dietary supplementation to limit the ever increasing rate of cell death.

In addition, as we age, our immune system loses its ability to regulate itself efficiently, primarily because the thymus, a glandular structure in the upper chest that is considered the seat of the immune system, begins to shrink after puberty and almost disappears by the time we are 50 years old. It has been shown that the thymus can be restored to normal function by the growth factors in colostrum. In addition, colostrum contains specific hormones that regulate the functions of the thymus and other substances that help to keep the immune system under control. Having a healthy immune system provides overall defense against a variety of microorganisms. It is also very, very important to recognize that all colostrum products are not the same and, despite the claims made by their manufacturers, they do not all contain every beneficial component at an optimum concentration and, in many cases, they have been manipulated and may be missing some of the essential components. When choosing a colostrum product, you should be certain that it is made from only first milking bovine colostrum collected within 6-8 hours after birth of the calf and that the colostrum is "complete" and that none of the components have been removed, including the fat. I have personally been responsible for testing of several different brands of colostrum for human use and can attest that the results prove that the products distributed by Immune-Tree contain the highest quality complete bovine colostrum available today.

I hope that this information is beneficial and answers your question.

To your good health - always.

Sincerely,  
Alfred E. Fox, Ph.D.

Dr. Alfred E. Fox holds a Ph.D. from Rutgers University in Microbiology (Immunochemistry) and has more than 25 years of senior management experience at Carter-Wallace, Baxter Dade Division and Warner-

Lambert, where he was responsible for research and development and regulatory affairs. He was also the founder and president of two biotechnology companies focused on agribusiness and environmental monitoring, respectively. For the past 15 years, Dr. Fox has been the President of Fox Associates, a business and technology consulting firm serving small- to mid-size companies in the human and animal healthcare fields. He focuses primarily on marketing and regulatory issues and for the past 10 years has continuously consulted to bovine colostrum manufacturers, where he has gained regulatory approval for their products, been a technical advisor, helped design and develop marketing strategies and served as an expert witness in legal matters.